

REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicants thank the Examiner for carefully considering this application, for indicating that the drawings filed on 15 April 2004 are accepted, and for indicating that claims 42, 43, 50, and 51 contain allowable subject matter.

Disposition of Claims

Claims 41-57 are pending in this application. Claims 41, 49 and 57 are independent. The remaining claims depend, directly or indirectly, from claims 41 and 49.

Claim Amendments

Claims 41, 49, and 57 are amended to clarify the scope of the invention. No new matter is added by way of these amendments as support may be found, for example, on page 1, lines 9-11, page 2, lines 9-17, and page 42, lines 21-23 of the specification as filed.

Allowable Subject Matter

Claims 42, 43, 50, and 51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the following remarks and above amendments, Applicants believe all claims to be in condition for allowance. Thus, the rewriting of claims 42, 43, 50, and 51 into independent form is deferred at this time.

Rejections under 35 U.S.C. § 101

Claim 57 stands rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter because an apparatus claim utilizing the “means for” function fails to include any

type of hardware. To the extent that the rejection still applies to amended claim 57, this rejection is respectfully traversed.

Specifically, claim 57 has been amended to include “wherein a portion of at least one selected from a group consisting of the first means, the second means, the third means, the fourth means, the fifth means, the sixth means, the seventh means, and the eighth means comprises a hardware processor.” Support for the amendment may be found, for example, on page 1, lines 9-11 and page 2, lines 9-17 of the specification as filed. Therefore, claim 57, as amended, cannot be fully realized by software alone and, thus, satisfies the requirements of 35 U.S.C. § 101. Accordingly, withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. § 112

Claim 57 stands rejected under 35 U.S.C. § 112 as being vague and indefinite because the steps in the body of the claim recite “means for” and the instant disclosure does not define the structures necessary for this type of language. To the extent that the rejection still applies to amended claim 57, this rejection is respectfully traversed.

Applicants respectfully assert that the originally filed specification discloses at least the existence of computers. *See, e.g.,* p. 1, ll. 9-11 & p. 2, ll. 9-17 of the originally filed application. Those of ordinary skill in the art, having the benefit of this detailed description, will appreciate that a computer includes at least one processor. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. *See, MPEP* § 2106.01.

Thus, any proper construction of claim 57 must include, at a minimum, a computer having at least one processor. Accordingly, contrary to the Examiner's contentions, claim 57 is definite and the rejection should be withdrawn.

Rejections under 35 U.S.C. § 102(b)

Claims 41, 44-49, and 52-57 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,434,576 ("Garthwaite").¹ For the reasons set forth below and to the extent the rejects apply to the amended claims, the rejection is respectfully traversed.

Specifically, independent claim 41 requires, in part,

"...obtaining a first count-map for the section, wherein the first count-map is associated with a first thread, and wherein a first entry in the first count-map is associated with a first segment of the plurality of segments..." (emphasis added).

Independent claims 49 and 57 include limitations similar to those included in independent claim 47.

Turning to the rejection, "[a] claim is anticipated only if *each and every element* as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987) (emphasis added). Further, "[t]he identical invention must be shown in as complete detail as is contained in the claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Applicants assert that Garthwaite fails to disclose all the limitations of independent claims 41, 49, and 57.

¹ In the Action, the Examiner failed to explicitly reject independent claim 49. However, because the Examiner has indicated that claims 50-51 are objected to for being dependent on a rejected base claim (*i.e.*, claim 49), Applicants assume that the Examiner intended to reject claim 49 as well and are responding based on this assumption to expedite prosecution.

Amended independent claim 41 requires obtaining a count-map that is associated with a particular thread (*i.e.*, the “first thread”). Because the count-map is associated with a particular thread, independent claim 41 must be directed to a multithreaded environment. Otherwise, it would not be necessary to specify that the count-map is associated with a particular thread. This reading of the claim is supported throughout the specification as filed. *See, e.g.*, p. 42, lines 21-23 of the specification as filed. In addition, amended claim 41 now explicitly recites that the method is “performing garbage collection in a multithreaded environment.” In view of the requirements of MPEP § 2173.05(a), any alternative reading of the claims (*i.e.*, ignoring the fact that the count-map must be associated with a particular thread in a multithreaded environment and the explicit language that the garbage collection is performed in a multithreaded environment) would be improper. Amended independent claims 49 and 57 include similar limitations and are patentable for at least the same reasons.

Further, Applicants respectfully assert that Garthwaite is completely silent with respect to a first count-map that is associated with a first thread. Specifically, the cited portion of Garthwaite (col. 7, ll. 16-46; col. 8, ll. 41-65; col. 15, ll. 35-50) is directed to keeping a reference count for each object in a car section currently being collected. Garthwaite discloses an object that includes a reference-count in its header. As the garbage collector processes a collection-set car’s remembered set, it increments the object’s reference count field each time it finds a reference to that object, and it tests the resultant value to determine whether the count exceeds a predetermined popular-object threshold. If the count does exceed the threshold, the collector removes the object to a “popular side yard” if it has not done so already. Further, the garbage collector of Garthwaite consults a table, which points to linked lists of normal-car-section-seized regions intended to contain popular objects.

Thus, Garthwaite does not appear to contemplate associating *any* part of his invention with a particular thread in a multithreaded environment. Therefore, Garthwaite cannot possibly teach “obtaining a first count-map for the section, wherein the first count-map is associated with a first thread,” as explicitly required by amended independent claims 41, 49, and 57.

In view of the above, amended independent claims 41, 49, and 57 are patentable over Garthwaite. Dependent claims are patentable over Garthwaite for at least the same reasons as the aforementioned independent claims. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 33226/980001; P8304).

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Respectfully submitted,

By /Robert P. Lord/
Robert P. Lord
Registration No.: 46,479
OSHA · LIANG LLP
3945 Freedom Circle, Suite 300
Santa Clara, California 95054
(408) 727-0600
(408) 727-8778 (Fax)
Attorney for Applicants